SECTION 02215

GEOTEXTILES USED AS FILTERS
05/95

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 123	(1993) Standard Terminology of Terms Related to Textiles
ASTM D 3786	(1987) Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method
ASTM D 3884	(1992) Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method)
ASTM D 4355	(1992) Deterioration of Geotextile from Exposure to Ultraviolet light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1992) Water Permeability of Geotextiles By Permittivity
ASTM D 4533	(1991) Trapezoid Tearing Strength of Geotextile
ASTM D 4632	(1991) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1993) Determining the Apparent Opening Size of a Geotextile
ASTM D 4833	(1988) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(1988) Guide for Identification, Storage, and Handling of Geotextiles

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES:

SD-13 Certificates

Geotextile; FIO.

The Contractor shall submit a certification of the geotextile material from the manufacturer.

SD-14 Samples

Geotextile; FIO.

If requested by the Contracting Officer, the Contractor shall provide to the Government geotextile samples for testing to determine compliance with any or all of the requirements in this specification. When samples are to be provided, they shall be submitted a minimum of 30 days prior to the beginning of installation of the same textile. A written certificate of compliance signed by a legally authorized official from the company shall be submitted, in duplicate, upon delivery of the geotextile. The certificate shall state that the geotextile shipped to the site meets the chemical requirements and exceeds the minimum average roll value listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Upon request, the contractor shall supply quality control and quality assurance tests for the geotextile. All samples provided shall be from the same production lot as will be supplied for the contract, and shall be the full manufactured width of the geotextile by at least 10 feet[3.05 meters (10 feet)] long. Samples submitted for testing shall be identified by manufacturers lot designation.

1.5 SHIPMENT, HANDLING, AND STORAGE

1.5.1 Shipment

Only approved geotextile rolls shall be delivered to the project site. All geotextile shall be labeled, shipped, stored, and handled in accordance with ASTM D 4873 and as specified herein. Each roll shall be wrapped in an opaque and waterproof layer of plastic during shipment and storage. The plastic wrapping shall be placed around the geotextile roll in the manufacturing facility and shall not be removed until deployment. Each roll shall be labeled with the manufacturer name, geotextile type, lot number, roll number, and roll dimensions (length, width, gross weight). Geotextile wrapping damaged as a result of delivery, storage, or handling shall be repaired or replaced, as directed at no additional cost to the Government.

1.5.2 Handling

No hooks, tongs, or other sharp instruments shall be used for handling geotextile. Geotextile shall not be dragged along the ground. Any geotextile determine to be damaged as a result of poor handling shall be removed from the site and replaced, at no additional cost to the Government, by additional geotextile meeting requirements of this specification.

1.5.3 Storage

During all periods of shipment and storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures greater than 140 degrees F[60 degrees C (140 degrees F)] (or less if recommended by the manufacturer), mud, dirt, dust and debris. Geotextile shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect the properties or performance of

the geotextile.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Geotextile

2.1.1.1 General

The geotextile shall be a woven pervious sheet of plastic yarn as defined by ASTM D 123. The geotextile shall equal or exceed the minimum average roll values listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Strength values indicated in the table are for the weaker principal direction.

TABLE 1

MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	lb	115	ASTM D 4632
ABRASION	lb	N/A	ASTM D 3884
SEAM STRENGTH	lb	N/A	ASTM D 4632
PUNCTURE	lb	40	ASTM D 4833
BURST STRENGTH	psi	N/A	ASTM D 3786
TRAPEZOID TEAR	lb	25	ASTM D 4533
PERMEABILITY	cm/sec	1/10000	ASTM D 4491
APPARENT OPENING SIZE	U.S. SIEVE	>= #120 AND <= #70	ASTM D 4751
PERMITTIVITY	sec -1	N/A	ASTM D 4491
ULTRAVIOLET DEGRADATION	%	50 AT 500 Hrs	ASTM D 4355

2.1.1.2 Geotextile Fiber

Fibers used in the manufacturing of the geotextile shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of polyolefins, polyesters, or polamides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary to make the filaments resistant to deterioration caused by ultraviolet light and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a network such that the filaments or yarns

retain dimensional stability relative to each other, including the edges. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

2.2 INSPECTIONS, VERIFICATIONS, AND TESTING

2.2.1 Manufacturing and Sampling

Geotextiles and factory seams shall meet the requirements specified in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE.

PART 3 EXECUTION

3.2 INSTALLATION OF THE GEOTEXTILE

3.2.1 General

The geotextile shall be placed in the manner and at the locations shown on the drawings. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage.

3.2.2 Placement

The geotextile shall be placed as shown on the drawings and laid smooth and free of tension, stress, folds, wrinkles, or creases. The strips shall be placed to provide a minimum width of 12 inches of overlap for each joint. The placement procedure requires that the geotextile wrap the bottom of the filter material and overlap the weep hole in the wall by at least 1 foot. Furthermore the geotextile shall wrap around the sides and top of the filter material by at least 1 foot. Temporary pinning of the geotextile to help hold it in place until the filter material is placed shall be allowed. The temporary pins shall be removed as the granular filter material is placed to relieve high tensile stress which may occur during placement of material on the geotextile. Trimming shall be performed in such a manner that the geotextile shall not be damaged in any way.

3.3 PROTECTION

The geotextile shall be protected at all times during construction from contamination by surface runoff and any geotextile so contaminated shall be removed and replaced with uncontaminated geotextile. Any damage to the geotextile during its installation or during placement of granular filter materials shall be replaced by the Contractor at no cost to the Government. The work shall be scheduled so that the covering of the geotextile with a layer of the specified material is accomplished within 3 calendar days after placement of the geotextile. Failure to comply shall require replacement of geotextile. The geotextile shall be protected from damage prior to and during the placement of backfill and filter material. Before placement of backfill and filter material, the Contractor shall demonstrate that the placement technique will not cause damage to the geotextile. In no case shall any type of equipment be allowed on the unprotected geotextile.

3.5 OVERLAPPING AND SEAMING

3.5.1 Overlapping

The overlap of geotextile rolls shall be 12 inches.[305] [610] [914]

[_____]mm ([12] [24] [36] [_____] inches). Appropriate measures will be taken to insure required overlap exists after placement of backfill and granular filter material.

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